USAWC STRATEGY RESEARCH PROJECT

# U.S. POLICY ON WEAPONIZING SPACE AND THE ARMY'S ROLE IN SPACE CONTROL OPERATIONS

by

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This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.

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**ABSTRACT**

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The Army has a history of leading the services in the space control mission area. The technology development for anti-ballistic missile (ABM) systems served as a logical precursor to the United States first operational anti-satellite (ASAT) capability called the Nike-Zeus. Today, the Army is pushing two new space control programs through the Total Army Analysis (TAA) process. One unit is the Space Counter Surveillance and Reconnaissance (SCRS) system and the other is the Space Electronic Warfare System (SEWS). This Strategy Research Paper will investigate United States policy on the use of space control negation systems and it will review Joint and Army Doctrine on the Command and Control of Space Forces. It will conclude with recommendations for a clarification of U.S. Space policy, actions to clarify roles and missions for each service in space operations, and improvements to command and control of joint theater space forces.

**TABLE OF CONTENTS**

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# U.S. POLICY ON WEAPONIZING SPACE AND THE ARMY'S ROLE IN SPACE CONTROL OPERATIONS

> The United States is an attractive candidate for a "Space Pearl Harbor." We are on notice, but we have not noticed.
>
> —Commission to Assess United States National Security Space Management and Organization 11 Jan 2001

The United States is more reliant on space capabilities than any other country in the world.[1] The United States military and intelligence communities see space as the ultimate high ground and use space capabilities for a wide range of defense and intelligence missions. The U.S. Government relies on civil space capabilities for space science, Earth observation and research, human space flight, and space technologies.[2] The commercial sector is now expanding into the domain of space to further their economic benefit. For example, everyday uses of satellites include purchases at the gas station, television broadcasts, commercial imagery, pagers and cell phone utilities. However, this reliance on space may lead to vulnerabilities where our space systems may come under attack by our adversaries. Similarly, the increased access to space may now also allow our adversaries to exploit space systems to gain a strategic or tactical advantage. The purpose of this strategy research paper is to investigate the role the Army can play to address space system threats. This paper examines national space policy, roles and missions of the services, joint and service doctrine, and Army capabilities to execute the space control mission in support of the national leadership and combatant commanders worldwide. In so doing, it recommends improvements in each of these areas to assure access to space for the United States and its allies and deny, as required, space capabilities to our adversaries.

## SPACE POLICY REVIEW

The United States is currently in the unique position of being the only superpower in the world. As such, we are able to determine the extent to which we will further pursue our military capabilities to exert global influence. A vital concern for current and future national security is the use of space to further national objectives. Ultimately, the nation needs to decide whether our national space policy is to preserve space for peaceful purposes, or to operate weapon systems in space "to protect" our vital national interests. This section investigates the threat to U.S. space systems, the space threat to the U.S. by other countries, and current U.S. national

space policy. It concludes with a recommendation to modify the existing language in U.S. space policy concerning our definition of the use of space for peaceful purposes.

## UNITED STATES RELIANCE ON SPACE

No one would argue that the United States is increasingly reliant on space systems. This paper will focus primarily on national security uses of space systems and it will expound on the military and intelligence applications of space capabilities. The military mission that defines much of the practical utility in space systems is Space "Force Enhancement." Space Force Enhancement activities include: intelligence, surveillance, and reconnaissance (ISR); position, navigation, velocity, and timing (PNVT); satellite communication (SATCOM); missile early warning; and environmental monitoring. A comparison of space force enhancement applications during Operations Desert Storm and Operation Iraqi Freedom (OIF) will quickly demonstrate that U.S. military reliance on space systems has grown significantly over the last thirteen years.

Many referred to the 1991 Persian Gulf War (Desert Storm), as the first "space war." Granted, in many applications, the military used space systems in combat for the first time. The Global Positioning System (GPS) enabled precise navigation in the featureless desert, satellite communications enabled improved command and control, and satellite infrared sensors enabled early warning of SCUD missile attacks. In considering the use of space systems during OIF, one can see a significant increase in space utility in the last thirteen years. There was significantly more satellite communication bandwidth available for command and control available to military forces than in the past. GPS not only enabled navigation, but also was integrated in over 80 percent of the precision munitions (an increase from 20 percent in Desert Storm), and GPS and SATCOM contributed to new space-based blue force tracking capabilities. The Joint Tactical Ground Stations (JTAGS) deployed forward to provide in-theater missile warning, and the intelligence community used space-based ISR capabilities to their fullest. As we consider our increased reliance on space systems, we should also be aware of the vulnerabilities and foreign military threats associated with that reliance.

## FOREIGN MILITARY THREATS TO U.S. SPACE SYSTEMS

One does not need to investigate too deeply to identify the nature of emerging threats to U.S. space systems. During the Cold War, as the United States and the Union of Soviet Socialist Republics (USSR) were engaged in the space race, the USSR actively pursued a variety of Anti-Satellite (ASAT) programs. They developed a variety of offensive space control weapons to include a co-orbital ASAT, the Gorgan Anti-ballistic Missile Interceptor, Radio

Electronic Combat satellite jamming systems, and a variety of ground-based laser systems with the potential to defeat, or at least threaten, a satellite on orbit.[3] Despite the end of the Cold War, new rivalries in space continue.

Today, China perceives the U.S. dominance in space capability as a threat to their national security and appears to be on the threshold of developing weapon systems to counter the U.S. advantage in space. In the Secretary of Defense's 2003 Annual Report on the Military Power of the People's Republic of China (PRC), our nation identifies two significant space related threats coming out of China. First, we see their increased emphasis on improving space-based reconnaissance and surveillance systems. Second, the report indicates, "China is said to be acquiring a variety of foreign technologies which could be used to develop an active Chinese ASAT capability."[4] The report adds that the PRC may be developing jammers against the GPS system, they may possess the capability to damage optical sensors on satellites using laser systems, and the PRC is conducting research and development for a direct ascent ASAT system.[5]

Operation Iraqi Freedom provides further evidence that our space systems are a viable target for our adversaries even from nations much smaller than the PRC. On March 25, 2003, during a U.S. Central Command (CENTCOM) press briefing, the CENTCOM J3, Maj Gen Victor E. Renuart Jr., discussed the Iraqi use of Russian built GPS jammers in an attempt to deny the precision accuracy of US forces and weapons in the war. Renuart explained, "We have noticed some attempts by the Iraqis to use a GPS-jamming system that they have procured from another nation."[6] So, this combination of reports should clearly serve the purpose of putting the U.S. on notice that a potential future adversary may put U.S., allied, civil, consortia and commercial space-based capabilities at risk.

## THREATS FROM CIVIL AND COMMERCIAL SPACE CAPABILITIES

The United States Government and private businesses strongly advocate the unfettered use of space for both civil and commercial application. In order to promote the commercialization of space capabilities the U.S. has authorized select dual-use technology transfer to the commercial market to help stimulate economic growth in space. As a natural consequence, there are multiple satellites on orbit providing space capabilities to the domestic and foreign commercial sector. For example, the use of satellite phones and broadcasting capabilities by imbedded reporters covering OIF is testimony to the significant use of commercial space capabilities. We have also witnessed a significant increase in international consortia putting space systems on orbit in pursuit of the commercial market.

The range of commercial space capabilities includes significant SATCOM, environmental monitoring, and sub-meter photoreconnaissance capabilities. These systems are widely available to anyone, for a price. The collection of these commercial capabilities in space to make a profit generates a situation where a nation does not need to develop its own indigenous space capability. Countries, like the PRC or North Korea, may now purchase their requisite space support from any respective vendor selling the desired capability. The DoD report on China validates this concern by stating that, "China will continue to use commercial satellite imagery and may seek to join an international consortium-owned constellation."[7] The net effect of this proliferation of space capabilities is that our adversaries may have tremendous access to space capabilities that allow them to derive the same benefit of space force enhancement as currently in practice by the U.S. military at a much-reduced cost. Therefore, these commercial and consortia space capabilities available to our adversaries may constitute a threat, or an equalizer, as they negate the current asymmetric advantage the U.S. has over its adversaries in peace and war.

## UNITED STATES SPACE POLICY

Given the overview of the potential threats to the United States access to space, a review of current U.S. Space Policy is necessary to determine which military actions we can take to enable our assured access to space. Several government documents collectively comprise the body of space policy. These documents include U.S. National Space Policy, Department of Defense (DoD) Space Policy, the Quadrennial Defense Review, and Joint and Service Space Doctrine. There is no one document or unified view, but a collection of views to interpret the U.S. position on space weaponization.

U.S. National Space Policy outlines broad goals and breaks up guidance into the following areas: civil, national security, commercial and intersector space guidelines. From the strategic perspective, the policy indicates that we will maintain a, "balanced national space program that serves our goals in national security, foreign policy, economic growth, environmental stewardship and scientific and technical excellence."[8] It further states, "The United States will pursue greater levels of partnership and cooperation in national and international space activities and work with other nations to ensure the continued exploration and use of space for peaceful purposes."[9] The statement that opens the door for the eventual weaponizing of space follows where the policy indicates, ""peaceful purposes" allow defense and intelligence-related activities in pursuit of national security and other goals."[10] In the area of National Security Guidelines, there are specific tasks that state what the U.S. will do to secure national security

objectives. Specifically, it claims, “National security space activities shall contribute to U.S. National security by:

a. providing support for the United States’ inherent right of self-defense and our defense commitments to allies and friends;

b. deterring, warning, and if necessary, defending against enemy attack;

c. assuring that hostile forces cannot prevent our own use of space;

d. countering, if necessary, space systems and services used for hostile purposes.”[11] There is additional specific defense sector guidance within the National Security Guidelines. It states, “The DoD shall maintain the capability to execute the mission areas of space support, force enhancement, *space control*, and *force application*”[12] (italics added). These last two mission areas (space control and force application) demand further examination because they point to the issue of space weapons that may need to deploy in space, resulting in the weaponizing of space.

The National Space Policy states, “Consistent with treaty obligations, the United States will develop, operate and maintain space control capabilities to ensure freedom of action in space and, if directed, deny such freedom of action to adversaries.”[13] *Space control* is defined as those activities that provide freedom of action in space for friendly forces while, when directed, denying the same to an adversary. Space control includes four mission areas including space surveillance, protection, prevention, and negation. The negation area of space control is that mission that specifically addresses the means to deceive, disrupt, deny, degrade or destroy an adversary’s space capability.[14] In the space control portion of the U.S. Space Command Long Range Plan, it states, “the Space-Based Jammers and Space-Based Lasers appear the most versatile in providing options for temporary effects on anticipated targets.”[15] The timelines for development and fielding of such systems as the space-based laser and space-based jammers are in the 2012-2020 timeframe. These statements and the timelines shown in the document for system development point to the body of information indicating the U.S. military intentions to put space control negation systems in space.

Joint Publication 3-14 (Joint Doctrine for Space Operations) defines *Space Force Application* as “attacks against terrestrial-based targets carried out by military weapons systems operating in or through space.”[16] It further states that the force application mission area includes ballistic missile defense (BMD) and force projection. The last statement from the National Space Policy which has bearing on the discussion is, “The United States will pursue a ballistic missile defense program to provide for: enhanced theater missile defense capability later this decade; a national missile defense deployment readiness program as a hedge against

the emergence of a long-range ballistic missile threat to the United States."[17] This statement about the BMD program begs the question as to why it is found in the National Space Policy. Again turning to the USSPACECOM Long Range Plan, under discussions of space force application, it list a variety of space-based platforms for BMD to include space-based radar and space-based laser systems.[18] The combination of documents described here seem to provide clear indication of U.S. intentions to place portions of the BMD system "in space".

## EXTERNAL FACTORS BEARING ON THE PROBLEM

Given the nature of U.S. vital national interests in space, the potential for an adversary to attack our assets, and a space policy that would allow room for liberal interpretation to put weapons in space, it is prudent to survey the potential limitations to U.S. freedom of action in space. In addition to international opinion, there is a body of international space policy, primarily international treaties through the United Nations that may influence U.S. actions. Historically, the international agreements that have had the most direct impact on the weaponizing of space debate are the Outer Space Treaty of 1967 and the Anti-Ballistic Missile Treaty of 1972.

The UN's Outer Space Treaty was the first major treaty to emerge during the space race between the U.S. and the USSR. The clear essence of the Outer Space Treaty is to affirm the use of space for peaceful purposes. The treaty specifies, "Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any kind of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner."[19] Of significant note is what the treaty does not say. The Outer Space Treaty does not explicitly prohibit the placement of conventional weapons in space. So, although specifically addressing nuclear and WMD capabilities, the real essence of the treaty is to maintain the domain of space for peaceful purposes.

The next significant treaty that had an historical bearing on this issue is the Anti-Ballistic Missile (ABM) Treaty of 1972 between the U.S. and the USSR. Again, focused on the Cold War era and the nuclear arsenals of the two nations, the treaty is oriented to limiting anti-ballistic missile capabilities. The premise behind the treaty was a build up of ABM capabilities would have the potential to counter the destructive capability of intercontinental ballistic missiles and lead to a further build up of nuclear arsenals among the belligerents. Additionally, deterrence would become irrelevant if an ABM system could "protect" a nation. The ABM Treaty is very specific in its limitation on the number of missiles and launchers a country could employ and in its description of the elements of an ABM system to include missiles, launchers, and radars. The specific wording of the ABM Treaty pertaining to this debate is found in Article V which

states, “Each Party undertakes not to develop, test, or deploy ABM systems *or components* which are sea-based, air-based, *space-based*, or mobile land-based.”[20] So, specifically with regard to anti-ballistic missile systems, the ABM Treaty would have a major impact on our decision to place any part of a missile defense system in orbit. However, in the wake of the September 11th, 2001 terrorist attacks on the United States, President George W. Bush resolved this dilemma for the U.S. On December 14, 2001, he gave the UN and Russia formal notice, in accordance with Article XV of the ABM Treaty, and announced U.S. intentions to withdraw from the treaty. [21] Since the USSR (one of the primary signatories with any ABM capability) no longer exists, the Bush Administration choose to abrogate in accordance with the provisions in the treaty. Six-months following the President’s announcement, on June 14, 2002, Deputy Secretary of Defense Paul Wolfowitz made a speech formally announcing the U.S. withdrawal from the ABM Treaty was effective as of that date. In his comments, he stated, “we are now free to develop, test and deploy effective defenses against missile attacks from states like North Korea and Iran.”[22]

Lastly, the court of international opinion may have a bearing our decisions to weaponize space. Over the years, disarmament advocates in academia have argued against a weapons race in space. Additionally, the weak continue to argue against the strong. Those who cannot try to regulate those who can. This debate occurs at the United Nations Conference on Disarmament where both China and Russia have pressed for an agreement aimed at preventing an arms race in space. The United States continues to insist that no such treaty is necessary. [23]

## OPTIONS AVAILABLE TO THE UNITED STATES

Given the threats to U.S. space systems, U.S. Space Policy, and external influences, the question remains whether to deploy weapon systems on orbit or not. The heart of this debate now lies with the United States and is simply a question of how far we will go in putting “defense” systems in orbit to advance our national interests. As stated above, the U.S. Space Policy clearly articulates that although we are committed to the use of space for peaceful purposes, we define peaceful purposes to allow defense activities to pursue national security goals.[24] Today, we have many defense related satellite systems in orbit to include national technical means of acquiring satellite imagery for imagery intelligence (IMINT), electronic intelligence (ELINT), infra-red detection systems to provide early warning of missile launches, numerous satellite communications systems for U.S. Government and DoD activities, and the GPS system for position, navigation, velocity, and timing enhancements to DoD forces. Thus

far, one could characterize the overall deployment of DoD systems on orbit as defensive, or informational in nature. Although plans were developed in the 1960's to do so, the U.S. has yet to place the first offensive system in orbit to fire a kinetic weapon, directed energy weapon, or Radio Frequency (RF) Jammer. Therefore, it seems the debate boils down to two courses of action:

- **Option A:** Maintain the status quo and do not deploy weapon systems to orbit. Continue the development of space-based force enhancement and information systems while developing ground- based space control negation systems.
- **Option B:** Deploy space control and ABM weapon systems to orbit and retain the right to further weaponize space, as required, to meet national security objectives.

ANALYSIS

This decades old debate began with the space race between the U.S. and the USSR. The increased reliance on space by the U.S. military and intelligence community keeps the debate alive and fresh. One must ask whether the conditions have changed so significantly over the last forty years that it would cause the United States to employ a new concept of operations for space. There are two criteria useful in examining the courses of action outlined above. The first is the ability to meet the goals outlined in the national space policy. The second is to avoid a "Space Pearl Harbor". Course of action (a) allows the continued use of space for peaceful purposes while still militarizing space to provide the defense and intelligence-related activities in space. Increased awareness of the threat and the ability to monitor activities and intentions are the way to avoid surprise. Course of action (b) may also accomplish the U.S. national security mission, but generates greater risk. One goal of the U.S. Space policy is to promote international cooperation. The weaponizing of space may lead to greater tension and distrust between the US and potential adversaries. As you recall, the Japanese did not capture Pearl Harbor because a lack of forward military presence. They simply attacked the military force the U.S. had stationed in the Pacific. Militarizing space with weapon systems may give our adversaries more incentive to attack our space-based systems than to also preserve space for "peaceful purposes".

**ROLES OF THE SERVICES**

If we assume the status quo on space policy and are then limited to developing terrestrial-based space control capabilities, the services need to understand their respective portion of the mission and be responsive to the combatant commanders to provide the requisite capabilities. All services participate in space operations necessary to meet the needs of the combatant

commanders and individual service requirements. U.S. Strategic Command (STRATCOM) is the combatant commander charged by the Unified Command Plan (UCP) to execute both Global Space and Global Missile Defense missions. The STRATCOM Commander accomplishes these missions through his respective Service Components: Army Space and Missile Defense Command (SMDC), Naval Network Warfare Command (COMNAVNETWARCOM), and Air Force Space Command (AFSPC). The 2001 Space Commission recommended (and the SECDEF approved the recommendation) to designate the Air Force as the Executive Agent for Space. However, the service secretaries remain responsible to develop requirements, maintain a cadre of space officers, and research, develop, acquire, and deploy space systems unique to each service.[25] While the designation of the Air Force as Executive Agent may leave the other services disenfranchised or wondering about their future role in space operations, SMDC is making progress in providing space capabilities to STRATCOM and the Land Component Commander.

## SMDC ACTIVITIES; PAST AND PRESENT

Army Space and Missile Defense Command is doing its part to support the combatant commander in these two mission areas. In fact, the Army has considerable historical experience in the space control mission area. The close association with technology development for ABM systems lends itself to ASAT development. In the late '50's and early '60's the Army exploited capabilities of the Nike ABM missile system and developed the Nike-Zeus ASAT weapon. "In May 1962, the U.S. Army fielded the first operational anti-satellite weapon (ASAT) base at the Kwajalein Missile Range (KMR)."[26] The Army also sustained a new research and development program on a kinetic energy ASAT through the 1980's. Then, in the late '90's, the Army conducted data collection exercises against cooperative space targets using the High Energy Laser Test Facility (HELSTF) at White Sands Missile Range.[27]

In the area of Anti-Ballistic Missile Defense, SMDC is the Army's executive agent to develop and field the Ground-based Mid-course Defense (GMD) System. Similarly, SMDC is leading efforts to develop two new space control companies. The first is the Space Counter Reconnaissance System (SCRS) under co-development with the Air Force. This ground-based, HMMWV mounted system will deny the adversary the capability of electro-optical imagery collection from space. The second company under design and development is the Space Electronic Warfare System (SEWS). This system will provide combatant commanders a ground-based electronic warfare capability to jam adversary satellite communications.

Therefore, SMDC has a proven record of accomplishments and is on track now to provide the Land Component Commander a variety of space control capabilities.

LAND COMPONENT COMMANDER REQUIREMENTS

The Land Component Commander (LCC) requires the capability to deny an adversary use of space-based intelligence, surveillance and reconnaissance capabilities that could provide an adversary information about the position and location of friendly troop movements. As a force protection measure, the LCC may need to mask his movements to retain the element of surprise on the battlefield. During Operation Desert Storm, if Saddam Hussein had either indigenous or commercially available satellite imagery, he may have been able to observe the left hook maneuver conducted by coalition ground forces and we would have lost the element of surprise. As such, the LCC needs space control capabilities with the same mobility and force protection requirements of maneuver forces in the field. These last requirements of battlefield mobility and force protection make terrestrial-based space control capabilities a unique mission requirement for the Army.

This may seem a logical argument, but the Army does have some concern over the formal roles and missions between the services for the space mission. We have witnessed many recent changes in organizations and responsibilities in the space mission area. Mr. Bill Furr, Plans Director, G-3 SMDC West recently expressed his concerns in *The Army Space Journal*. He states, "With the acceptance of the Space Commission Report in 2001, the ongoing changes to the management and organization of Space including the merger of USSPACECOM and USSTRATCOM, and the pending publication of JCIDS (Joint Capabilities Integration and Development System), the centers of gravity have changed for Space and the Army must change with them."[28] He further expounds to say, "The designation of the Air Force as the Executive Agent for space could allow the Air Force to prosecute its role in space over those of the other Services. The challenge faced by the Executive Agent will be to balance the strategic, operational and tactical needs of all users and lessen the concern that the Air Force will dominate certain space programs to the exclusion of the other Services."[29] Although the space commission indicates that the services are responsible to field space systems unique to their service, it may be appropriate for the Secretary of Defense to provide clear guidance on the specific space roles and missions for the services.

**JOINT AND ARMY COMMAND AND CONTROL OF SPACE FORCES**

Assuming continued multi-service participation in space operations, the final item that bears scrutiny is the joint integration of service space capabilities in support of the combatant

commanders. We are fortunate to have both a fresh doctrinal reference and recent military campaigns (OEF and OIF) available to us to look at how well we accomplished command and control (C2) of space forces. A review of the doctrine and its implementation in Operation Iraqi Freedom will highlight some needed improvements in command and control of theater space forces for future operations.

## JOINT DOCTRINE

Joint Publication 3-14 (Joint Doctrine for Space Operations), approved on August 9, 2002, is the military's definitive document for joint space doctrine. In addition to defining the space mission areas and organizations who conduct space operations, it provides guidance to Joint Force Commanders (JFC's) on how to accomplish command and control (C2) of space forces. The document specifically states, "To facilitate unity of the theater/joint operations area (JOA) space effort, the supported combatant commander or a joint force commander (JFC) may designate a space authority. The space authority will coordinate space operations, integrate space capabilities, and have primary responsibility for in-theater joint space operations planning."[30]

## REVIEW OF OEF/OIF

During early operations of the Global War on Terrorism (GWOT) in the Central Command (CENTCOM) Area of Responsibility (AOR), specifically during OEF and the planning phase of OIF, CENTCOM did not designate anyone as the space authority. Meanwhile, in accordance with CENTCOM requests for forces (RFF's), the services deployed their respective space forces to theater to provide support to the combatant commander and to their respective service headquarters. U.S. Strategic Command deployed Joint Space Support Teams (JSST) to the CENTCOM Headquarters in Tampa, and deployed space expertise to the CENTCOM Forward (2 officers) and Combined Force Special Operations Command (CFSOC) (1 officer) Forward Headquarters in Qatar. Army Space Command deployed Army Space Support Teams (ARSST) to JTF-Afghanistan, to the Combined Forces Land Component Command (CFLCC) Headquarters, to the V Corps Headquarters and to the First Marine Expeditionary Force (IMEF) Headquarters. They deployed a Joint Tactical Ground Station (JTAGS) to Qatar, and deployed Space Control Test and Evaluation assets to Oman. Air Force Space Command deployed space experts to the imbedded space cell in the Combined Air Operations Center (CAOC) in Saudi Arabia. The absence of a designated space authority from the initiation of hostilities in Afghanistan in October 2001 until February 2003, contributed to confusion at many levels.

Space operations personnel at all levels were unclear about who had the authority to prioritize and deconflict space effects in theater.[31]

Eventually CENTCOM designated an Air Force Colonel (Brigadier General Select) to serve as the space authority. He deployed to Prince Sultan Air Base (PSAB) in late January/early February 2003. Upon his arrival in theater, he fell in on the existing space structure at the CAOC comprised of approximately 9 Air Force space officers and noncommissioned officers working the 24/7 space desk in the CAOC and the Intelligence Center. Although supported by the cast of Air Force personnel in the CAOC, he did not request space officer representation from the other services to round out his staff. By limiting his staff to Air Force only personnel, he limited his effectiveness in integrating joint space operations across the theater.

Although space operations include multiple mission areas including force enhancement, space support, space control and force application, the Air Force focuses its operational space support to the operations floor in the CAOC in four primary mission areas. The space officers working in the CAOC primarily focus on the four missions of: missile defense, combat search and rescue, and GPS enhanced theater support (GETS) and space control. This is in contrast to the Army Space Support Teams (ARSST) deployed with the Land Component Forces. The ARSST provide a wide array of space support to their respective headquarters and focus on all space force enhancement mission areas consisting of: ISR; PNVT; missile warning; SATCOM; and environmental monitoring. Bottom-line is the ARSST will be the local subject matter expert on all systems and missions if the support comes from a space system.

The result of the space authority being in the CAOC with an Air Force only staff was a limited view of the overall space support to the theater. In fact, the space authority never had the means to receive reports from all service space elements and did not track the operational status of all space forces in theater. Additionally, the late arrival in theater of the space authority precluded his active participation in the planning process of theater operations. The delayed designation of the space authority and the lack of a “joint” space staff comprised of space expertise from all services led to a lack of coordination, deconfliction, integration and synchronization of space operations in the CENTCOM Theater.

**RECOMMENDATIONS**

SPACE POLICY

I recommend the United States pursue **Option A** from the space policy discussion above, and limit the militarization of space to defensive and intelligence applications only. Although we

are the lone superpower today, we not only have the power to advance our cause as a global hegemon, but we also have the responsibility to lead the global community in a responsible manner. The fact that we have the technological capability to weaponize space for U.S. national security purposes does not mandate that we forego the conventions of international norms to advance our own cause. The withdrawal from the ABM Treaty may be justified by virtue of the fact that the USSR no longer exists and the nuclear arms race was squelched in our winning the Cold War. The current ballistic missile threat may warrant the placement of certain ABM capabilities in space such as detection and tracking capability to enhance ABM system performance. This would be consistent with U.S. previous deployments of space systems in orbit, short of an actual offensive weapon system.

We have witnessed in recent days the advancement of space capabilities by the PRC. Their successful mission of placing a Chinese astronaut in orbit and safely returning him to Earth is indicative of their technological advancement in the area of space capabilities. Given the PRC desire to counter the advantage we have in space, the weaponizing of space by the U.S. may motivate the PRC to follow suit and place our space platforms at greater risk.

The U.S. can continue to develop terrestrial and airborne weapon systems to accomplish the offensive space control and ballistic missile defense missions. The placement of offensive weapon systems in orbit would be counter to the intent of the Outer Space Treaty and unnecessarily create international tension, possibly leading to significant offensive actions in space by the PRC. The U.S. should sustain its compliance with the Outer Space Treaty and limit our deployment of space systems "for peaceful purposes". Therefore, I recommend a modification to our U.S. Space Policy that changes the wording from "peaceful purposes allow defense and intelligence-related activities"[32] to read, "peaceful purposes allow *defensive* and intelligence-related activities."

SERVICE ROLES AND MISSIONS

It is appropriate for the Secretary of Defense to provide clear guidance to the services articulating roles and missions in the space control mission area. LTG Joseph Cosumano, Jr., the former Commanding General of SMDC, stated in a recent *Army Space Journal*, "The space control mission is a joint mission where the Army's primary role is ground-based space control systems."[33] This suggests the Army should be designated lead service for ground-based space control capabilities, the Navy for sea-based, and the Air Force for air and space-based. Certainly, the Joint nature of system development via the Joint Requirements Oversight Council (JROC) will serve to deconflict and include other service requirements where boundaries

overlap. I concur with LTG Cosumano's comment and think the SECDEF could add clarification on roles and missions for the services that would reaffirm full participation as joint warfighting partners.

COMMAND AND CONTROL OF THEATER SPACE FORCES

For future operations, the Combatant Commander of U.S. Strategic Command should encourage the next Combatant Commander involved in contingency planning and operations to designate a space authority *immediately* upon entry into the crisis development phase. The space authority should request, and the respective space component commanders (STRATCOM, SMDC, COMNAVNETWARCOM, and AFSPC) should all provide, a supporting staff to the space authority to allow actual improved command and control, integration, deconfliction, and battle management of all theater space assets.

**CONCLUSION**

The United States is the greatest power in the world today. We exploit the domain of space for military, civil, and commercial purposes – all in support of national security objectives. Although we do incur some vulnerability due to our heavy reliance on space capabilities, our national space policy provides us the authority to defend our space assets, as required. In contemplating the best way to defend our assets in orbit, we debate the need to place offensive weapons in space to protect ourselves. It is recommended that we maintain our leadership in the world as a peaceful nation and preserve space for peaceful purposes. The placement of weapons in space may unnecessarily lead to increased competition in space and a future space war. By effectively articulating roles and missions to the services, we can develop terrestrially based weapons to adequately protect our assets and defeat adversary capabilities in space. It is recommended that the SECDEF provide better fidelity to the space control mission by designating the Army as lead service for ground-based, Navy for sea-based, and Air Force for air and space based space control capabilities. Lastly, the most effective use of all service space operations capabilities is through a joint space authority. To fully integrate and deconflict missions and requirements, staff officers from every service must adequately staff the space authority with joint space personnel.

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[12] Ibid, 6.

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[26] Bernard Kersteins, "The Path Taken… Army Space technology beginnings," the Army Space Journal, (Fall 2003) Vol. 2, No. 4: 53.

[27] Ibid.

[28] Bill Furr, "Past, Present, Future… Satellites become "high ground of Space" over last 30 years," the Army Space Journal, (Summer 2003) Vol 2, No. 2; 49.

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[31] Personal Interviews with Joint Space Support Teams and Air Force Space officers in the CENTCOM Theater from Oct 02 to Jan 03.

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